

ABSTRACT

The path selection and wavelength assignment to a selected path are performed by mapping the wavelength reach to the demand distribution (agile reach) resulting in a 50-60% increase in the network reach. The network reach is further increased (about 2.2 times) when on-line measured performance data are used for path selection and wavelength assignment. The connections may be engineered/upgraded individually, by optimizing the parameters of the entire path or of a regenerator section of the respective path. The upgrades include changing the wavelength, adjusting the parameters of the regenerator section, controlling the launch powers, mapping a certain transmitter and/or receiver to the respective wavelength, selecting the wavelengths on a certain link so as to reduce cross-talk, increasing wavelength spacing, etc.